

SN 10/625,763  
Docket No. S-100,646  
In Response to Office Action dated December 6, 2005

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1-30: (Canceled)

31: (Currently amended) An apparatus for removing heavy metals from water comprising:

- a. a water conduit for introducing water containing heavy metals into the apparatus;
- b. a conduit for introducing a quantity of magnetite or magnetite precursors into the apparatus;
- c. a mixing chamber wherein the water containing heavy metals is mixed with the magnetite such that at least a portion of the heavy metals are bound to the magnetite;
- d. a magnetic separator configured such that magnetite is removed from the water by application of a magnetic field;
- e. a solid matrix positioned within the magnetic separator that displays remnant magnetism that is sufficient to bind the portion of the heavy metals that are bound to the magnetite under flow conditions in which the water superficial velocity through the magnetic separator is in a range from about 0.5 cm/sec. to about 2 cm/sec; and
- f. an outlet conduit from conducting water out of the apparatus.

32-33. (Canceled)

34. (Previously presented) An apparatus as defined in claim 31 further comprising a source of external magnetism in magnetic communication with the matrix such that the matrix displays a magnetic field.

35. (Currently amended) An apparatus as defined in claim 31 further comprising a conduit for introducing a fluid in reverse direction to the direction of flow of the water such that said fluid removes ~~magnetite~~ magnetite and bound metal from the matrix.

36. (Canceled)

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37. (New) The apparatus according to Claim 31, wherein the apparatus comprises steel wool.
38. (New) The apparatus according to Claim 31, wherein the remnant magnetism has a strength of up to about 800 gauss.